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Tclaming

Le Roy Branch
Virg^a

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Of Tetanus

"Homines ad deos nulla re propius accedunt, quam salutem hominibus dando."

Tetanus is a spasmodic contraction of all, or several of the muscles, while the senses remain perfect and entire.

Both nosologists and practical writers, have distinguished tetanic complaints into the several species of tetanus; Opisthotonos, Emprosthotonos, and Trismus; but they are all evidently different forms of the same disease, differing only in the part they affect. Tetanic complaints may, from certain causes, occur in every climate that we are acquainted with; but they occur oftenest in the warmest climates. These complaints affect all ages, sexes, temperaments, and complexions. The causes from which they commonly proceed, are cold and moisture applied to the body, while it is very warm, and especially the sudden vicissitudes of heat and cold; also from powerful stimuli acting on the stomach; from worms irritating the alimentary canal, and from constipation of the bowels. Or the disease is produced by punctures, lacerations,

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or other lesions of nerves, in any part of the body. Though the causes mentioned do, occasionally, affect all sorts of persons, they seem, however, to attack persons of middle age more frequently than the older or younger; the male sex than the female; and the robust and vigorous than the weaker. If the disease proceed from cold, or other general causes, it commonly comes on, in a few days after the application of such cold, or other exciting causes; but if it arise from a puncture or other lesion of a nerve, the disease makes its appearance, from a day, to six weeks, after the injury; very frequently when their is neither pain nor uneasiness remaining in the wounded or hurt part; and when the wound has been entirely healed up; but from whatever cause it proceeds, the premonitory symptoms, are generally the same. The disease sometimes comes on suddenly to a violent degree; but, more generally, it approaches by slow degrees to its violent state. In this case it comes on with a sense of stiffness in the back part of the neck, which gradually increasing renders the motion of the head difficult and painful. As the rigidity of the neck comes on and increases, there is commonly at the same time, a sense of uneasiness felt about the root of the tongue,

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which by degrees proceeds to difficulty of swallowing, and at length, an entire interruption of it. While at the same time, there arises a pain, often violent, at the lower end of the sternum, from thence shooting into the back, with much anxiety and distress about the praecordia. All the muscles of the neck, and particularly those of the back part of it, are immediately affected with spasm pulling the head strongly backwards: At the same time, the muscles that pull up the lower jaw, which upon the first approach of the disease, were affected with some spastic rigidity, are now generally affected with more violent spasm, and set the teeth so closely together, that they do not admit of the smallest opening. This is what has been named the Locked Jaw and is often the principal part of the disease. Sometimes the disease, continues to advance until the whole of the muscles of the spine become affected bending the trunk of the body strongly backwards, and this is what has been named Opisthotonos. When the trunk is bent forwards, the disease is called Emprosthotonos. In the lower extremities, both the flexor and extensor muscles, are commonly at the same time affected, and keep the limbs rigidly extended. During the whole course of the disease, the abdominal muscles,

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are violently affected with spasm, so that the belly is strongly retracted and feels very hard. At length, the flexors of the head, become so strongly affected, as to balance the extensors, and to keep the head and trunk straight and rigidly extended, incapable of being moved in any direction, and it is to this state of the disease, that the term of tetanus has been strictly applied. The arms which were little affected before, are now rigidly extended, the whole of the muscles belonging to them being affected with spasms, excepting those that move the fingers, which often retain some mobility to the last. The tongue also retains its mobility. At the height of the disease — every organ of voluntary motion seems to be affected, and amongst the rest, the muscles of the face. The eyes are immoveable in their sockets. Under these universal spasms, a violent convulsion comes on, and puts an end to a most miserable state of existence. These spasms are always attended with most violent pains. The utmost violence of spasm is, however, not constant, but after continuing for a few minutes, the muscles admit of some remission of their contraction, but of no such relaxation as can allow the action of their antagonists. This remission of contraction, gives some remission of pain,

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but neither is of long duration. The violent contractions and pains are renewed very often, and apparently without any exciting cause, but such exciting causes frequently appear, for almost every attempt to motion, as a change of posture, endeavoring to swallow, and even to speak, sometimes give occasion, to a renewal of the spasms over the whole body. When the spasms are general and violent, the pulse is contracted, hurried, and irregular and the respiration is affected in like manner, but during the remission, both the pulse and respiration usually return to their natural state. The heat of the body is often not increased, frequently the face is pale with a cold sweat upon it, and very often the extremities are cold, with a cold sweat upon the whole body. If however the spasms are frequent and violent the pulse is sometimes more full and frequent than natural. The face is flushed and a warm sweat is forced out over the whole body. Blood drawn at this time throws up a covering of coagulating lymph. In this disease the head is seldom affected with delirium or even confusion of thought, till the last stage of it, when by the repeated shocks of a violent distemper, every function of the system is very much disordered.

disordered. It is no less extraordinary that in this violent disease, the natural functions, in general, are not either immediately or considerably affected. Vomitings sometimes come on early in the disease, but commonly they are not continued, and it is usual enough, for the appetite of hunger, to remain through the whole course of the disease, and what food happens to be taken down seems to be well digested. The excretions are sometimes affected, but not always, the urine is sometimes suppressed or voided with difficulty and pain. The belly is costive. In judging of the tendency of this disease, we may remark, that when arising from wounds, it is more violent and ~~more~~ difficult of cure, than when from cold; that when the disease comes on suddenly and advances quickly to a violent degree, it is always more dangerous, than when it is slow in its progress. This disease has put on a different form from any of those before mentioned. My allusion is to its assumption of an intermitting character. In treating of the pathology of the disease, it has been customary with authors, to call all those cases of tetanus, which are brought on by wounds, symptomatic. And those which are brought on by general causes as cold &c. idiopathic. My opinion is

is that they are no more so than those which are said to be sympathetic. They all depend alike upon irritating impressions made upon one part of the body producing morbid excitement or disease in another. It is immaterial whether the impression be made upon the intestines, by a worm, or upon the stomach from the swallowing of poison, or upon the body from a long continued exposure of it to dampness or cold; or whether the impression is made from a wound in the foot by a nail. They are all at first local impressions, of an irritating nature, and disorder the system through the medium of sympathy. It is true that this local affection does not show itself in the form of real pain. It does not on that account, however, the less certainly exist, although to common apprehension, it may be difficult to prove its existence. We have however, in several instances, conclusive evidence of the existence of such an affection, and therefore very strong ground to infer its existence, in cases, where it is not so palpable to sense. In the kine pox and inoculated small pox, the affection of the arm is purely irritative. The same thing may be said in relation to Hydrophobia, an affection entirely irritative. The wound heals, gives no pain, and is forgotten. But a secret irritation lingers in the spot, which in

in a short period produces, by sympathy, a fatal malady.

Before I proceed to the treatment of this disease, I shall first mention the practice pursued to prevent the occurrence of it from wounds. Dr. Dorsey gives us this important advice. If there be any apprehension of Tetanus from a wound, Wine, Opium, and a generous diet should be prescribed. Where punctured wounds occur in extremely hot weather, it is the safest to enlarge them by the knife; or to apply stimulating substances, to excite inflammation, there is reason to believe, that Tetanus has in this way been often prevented. A soft poultice is the best local application. If the pain be great opium may be administered, and if fever or inflammation run high, bleeding and depleting remedies may become necessary. These are always, however, and particularly in hot weather, to be prescribed with caution, as they certainly render the system more liable to Tetanus. Dr. Caldwell recommends as the best preventive of Tetanus from external injuries, the conversion of punctured into incised wounds by means of the knife, and lacerated or contused wounds into suppurative ones. To produce suppurative action in lacerated or contused wounds, Spirits of Turpentine or a solution of Corrosive Sublimate, followed by poultices frequently repeated, should be resorted to. Tincture of Cantharides

-ides, Lunar Caustic, and the Emetic Tartar, have been successfully used for the same purpose. These things if done immediately after the injuries have been received, and before the occurrence of Tetanic symptoms are of great utility; but if delayed until the disease be fairly formed they often prove mischievous. When the Tetanic diathesis is completely formed, all local applications to the injured part are unavailing in general. The amputation of the limb itself has been found not to arrest the complaint. If from a neglect of preventive remedies, or in spite of their use, Tetanus has made its appearance, a different course is to be pursued. A strict attention is now to be paid to the system. If the excitement is very high, blood must be drawn and repeated according to circumstances. As the habit of disease action often continues after the removal of its causes, such remedies should be given as are calculated by their stimulating power to overcome the spasmodic action of the muscles, and of all the remedies, opium is the best calculated to effect that object. It should be given in large and frequent doses: from one to two drachms of an Alkali taken in the course of the day is said greatly to aid the action of the opium in this disease.

Wine should also be given, in the administration of which,

we are not to be governed by the quantity that is given, but by the effect that it produces. In addition to the remedies already mentioned, mercurial ointment has also been recommended as an external application, until a ptyalism be produced. Dr. Caldwell thinks, the remedies just mentioned, are the only ones on which any reliance should be placed in the cure of Tetanus. Of these he thinks opium and wine retard the progress of the disease, preventing exhaustion and death, from the violence of the spasms, until the mercury has had time to eradicate it entirely, by converting the Tetanic into the mercurial action. Opium and wine being in their nature rather palliative than curative remedies, are insufficient of themselves without mercury. While without their aid, mercury is too slow in its operation, to arrest the rapid march of the disease. These remedies must be pushed until the system shall have forcibly felt their action. Dr. Physick's practice is to administer, in Injections, opium in doses from five to eight grains, repeated at short intervals, until the spasms be overcome and somewhat of a soporific effect be produced; applying in the mean time, to various parts of the body, large quantities of mercurial ointment. The spasms being subdued he relaxes in the use of opium, until they

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manifest a disposition to return, when he immediately recurs to the same remedies, and in similar doses. In the mean time, the application of mercurial ointment is continued, until a ptyalism be produced. He prefers giving opium by injection in consequence of the difficulty of swallowing, which the patient usually experiences. If requisite he conveys aliment into the stomach, by means of a tube, which he carefully introduces into that organ.

Dr. Chapman says the power of opium has been exceedingly overrated in Tetanus arising in consequence of wounds. I shall here cite his own words. "Notwithstanding the general confidence once reposed in our medicine in all the neuroses, I do not know that it is of much service in any of these cases. Certainly, its powers have been exceedingly over-rated. In tetanus from wounds, though still a favorite remedy, I cannot, from what I have seen, estimate it very highly, and such I suspect, is the opinion generally of the practitioners of this country. Yet it should be recollected, that the few instances of tetanus, which are reported to have been cured by opium, were by very unusually large doses. In one case especially, fifteen hundred grains of the medicine were taken in seventeen days, and in another, the still

still more prodigious quantity of twenty ounces of laudanum, in twenty four hours. These facts ought to encourage us to persevere in the use of opium in the disease, and to a much greater extent, than we have hitherto commonly ventured to do. Enormous as are the doses mentioned, they are by no means incredible to those who have attended to the extreme torpor and insensibility of the system to the impression of medicine sometimes in this affection."

He also states that mercury is useful in Tetanus arising from a constipation of the intestinal canal; but in Tetanus of the symptomatic kind, or that originating from a wound or other injuries, he does not know that mercury is of the least service, the progress of these cases being so rapid for the most part, that long before it can take possession of the system, death ensues; he grants however the propriety of mercurial frictions, as they cannot interfere with other remedies. As a preventive of Tetanus, he allows that mercury may be of service, and to answer this indication, the wound is to be dressed with strong mercurial ointment, and small doses of Calomel are to be exhibited internally; this is the course pursued in the warm climate of the

the East Indies, and with great success. Dr. Reid advises a blister plaster to be applied along the whole length of the spine. When tetanus is brought on by exposure to cold, the surface is cold and damp in the first stage, and but little activity of pulse. In this situation, we are advised, to have recourse to diaphoretics, and when the system fully reacts, which it will speedily do, under the cordial and stimulating remedies, as the hot bath, Volatile alkali, and wine whey, then if necessary we may purge and bleed.